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SCIRPUS FLUVIATILIS (CYPERACEAE) IN TENNESSEE AND SOUTHEASTERN UNITED STATES—*Scirpus fluviatilis* (Torrey) Gray (river bulrush) is a rhizomatous species that characteristically grows in dense, pure, and often totally vegetative stands. Leafy culms are sharply trigonous, stout, and up to 2 m in height. The inflorescence is a compound umbel and achenes are obovoid, triangular, 4–5 mm long, and with six persistent bristles. However, flowers and achenes are not regularly produced. Typical habitats include margins of freshwater (usually calcareous) lakes, large streams, sloughs, swamps, marshes, and oxbow lakes. The distribution is from New Brunswick to Saskatchewan and Washington, New England south to Pennsylvania and Virginia, westward to Ohio, Indiana, Illinois, Kentucky, Missouri, Kansas, and in California and New Mexico (Fernald 1950, Schuyler 1967, Steyermark 1963).

Two historical accounts credit this species to Tennessee. Gattinger (1901), in his Tennessee Flora, reported river bulrush from "Bogs along Ocoee River, E. Tenn." Underwood (1932), in a catalogue of the state's Cyperaceae, included the species with the annotation "In Tennessee, A. Gattinger in bogs along Ocoee River, Palk [*sic*, Polk] County, East Tennessee."

There is apparently no documentation for these reports. If Gattinger collected a voucher, it was lost when fire destroyed the University of Tennessee Herbarium in 1934. It appears that Underwood based his report solely on the Gattinger account; the addition of Polk County is not significant since the Ocoee River flows only through that county in Tennessee. Later, Underwood did not include *S. fluviatilis* in the list of Tennessee monocots which he co-authored (Sharp et al. 1956).

It is unlikely that river bulrush occurs in East Tennessee today. If the Gattinger report is authentic, impoundments and sedimentation have altered the Ocoee River shoreline to such an extent that the species probably has been extirpated. Numerous studies there and along the nearby Hiwassee River by one of us (BEW) have not discovered river bulrush, and it is not listed in other accounts of the Tennessee wetland flora (Isely 1946, Robinson and Shanks 1959, Guthrie 1989, Webb and Bates 1989, Henson 1990).

River bulrush was not listed by Tucker (1987) in his treatment of Cyperaceae

for the Generic Flora of the Southeast, a long-term project of Harvard University that includes Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, and Tennessee. Other major references addressing all or part of this geographic area also do not include *S. fluviatilis* (Small 1933, Eyles and Robertson 1944, Radford et al. 1964, Godfrey and Wooten 1979).

The distribution is sparse in contiguous states to the northeast, north, and west of Tennessee. It is known from three counties in Virginia (Harvill et al. 1986) where it is of special concern (Porter and Wieboldt 1991), and from two counties in Kentucky (Arnold and Beal 1981, Beal and Thieret 1986), where it is threatened (Endangered Species Committee of Kentucky, 1986). Smith (1988) does not report it from Arkansas, but notes possible occurrence in the northeastern part of that state because of nearby records from Missouri. Steyermark (1963) maps it mostly from northern and central Missouri counties with scattered occurrences southeastward.

A large stand of sterile plants tentatively identified as *Scirpus fluviatilis* was observed in Henry County, western Tennessee, throughout the 1988, 1989, and 1990 growing seasons. Efforts to induce flowering were carried out in late winter 1991, when rhizomes were transferred into aquatic environments both in and out of a heated greenhouse at the University of Tennessee, Knoxville. Other rhizomes were "planted" in habitats near and similar to those of the colony. None of these efforts was successful (plants grew but did not flower), but on a visit to the Henry County site on 22 May and 21 June 1991, we found a few flowering-fruiting plants from which vouchers were collected and positive identification made.

We now have located several colonies, one consisting of hundreds of plants, over a shoreline distance of about three miles along the west shore of Big Sandy River, six miles southwest of its confluence with the impounded lower Tennessee River (Kentucky Reservoir). Colonies are in open, sandy alluvium and mostly in shallow water except during seasonal reservoir drawdowns. Although well established and protected within a U.S. Wildlife Management Refuge, river bulrush should be considered an element of concern in Tennessee.

Citations for our vouchers confirming *Scirpus fluviatilis* as part of the Tennessee and the southeastern U.S. flora are:

TENNESSEE. **Henry Co.**: Big Sandy Unit of the Tennessee National Wildlife Refuge, 22 May 1991, *Chester & Wofford 91-10* (APSC, TENN); same site, 21 Jun 1991, *Chester 91-29* (APSC, TENN, VDB).

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